Rainier ENVIRONMENTAL

Whole Effluent Toxicity Test Report: Washington Beef LLC.

December 2013

Report date: January 3, 2014

Submitted to:

Washington Beef LLC.
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1.0 INTRODUCTION

A whole effluent toxicity test was conducted using effluent samples collected from the Washington Beef LLC wastewater treatment plant in December 2013. A chronic bioassay was conducted using the test organism *Ceriodaphnia dubia* (*Ceriodaphnia*). Testing was performed at Rainier Environmental Laboratory located in Tacoma, Washington.

2.0 METHODS

2.1 Sample Collection and Transport

Effluent samples were collected into 4-liter (L) LDPE cubitainers by Washington Beef personnel. The samples were packed in coolers containing ice and shipped to Rainier Environmental by overnight delivery service. Appropriate chain-of-custody procedures were employed during collection and transport (Appendix D).

2.2 Sample Receipt

Upon arrival at the laboratory, coolers were opened, samples inspected, and the contents verified against information provided on the chain-of-custody forms. Receipt temperature was measured and recorded on the chain-of-custody form. The standard water quality parameters were measured and recorded on sample check-in sheets (Appendix B). Samples were stored at 4°C in the dark until used for testing.

2.3 Test Methods

A chronic toxicity test was conducted according to procedures presented by USEPA (2002). The methods are summarized in Table 1. The procedure involved a 7-day static-renewal exposure to the effluent. The endpoints from these tests were *Ceriodaphnia* survival at the end of exposure and reproduction at test termination or production of 3 broods, whichever occurred first. Termination of the test occurred when at least 60 percent of surviving control females produced 3 broods. The test was ended on Day 7.

Table 1. Summary of methods for the 7-day *Ceriodaphnia* survival and reproduction test.

Test initiation date and time	12/10/13; 1530h
Test termination date and time	12/17/13; 1500h
Test organism	*Ceriodaphnia dubia*
Test organism source	In-house cultures
Test organism age	< 24 hours
Test duration	7 days; Test terminated when 60% of controls reached 3 broods
Feeding	1:1 mixture YTC:algal suspension daily
Test chamber; test solution volume	30 mL plastic cup; 15 mL
Test temperature	25 ± 1°C
Dilution water	Diluted mineral water
Test concentrations (% sample)	100, 50, 25, 12.5, 6.25, laboratory control
Number of organisms/chamber	1
Number of replicates	10
Photoperiod	16 hours light/8 hours dark
Aeration	None
Test protocol	EPA-821-R-02-013
Test acceptability criteria for controls	≥ 80% survival; ≥ 15 neonates per surviving adult
Reference toxicant	Sodium chloride

3.0 RESULTS AND DISCUSSION

Details of standard water quality measurements conducted upon receipt of samples are provided in Table 2.

Table 2. Final Effluent sample information.

Parameter	WET		
Rainier Log-in No.	13-157	13-160	13-168
Collection date and time	12/9/2013; 0720h	12/11/2013; 0725h	12/13/2013; 0740h
Receipt date and time	12/10/2013; 1030h	12/12/2013; 1400h	12/14/2013; 1100h
Receipt temperature (°C)	1.0	2.4	2.4
Dissolved oxygen (mg/L)	6.7	7.0	5.4
pH	7.47	7.35	7.30
Conductivity (µS/cm)	4610	4390	4090
Salinity (ppt)	2.3	2.3	2.0
Hardness (mg/L $CaCO_3$)	80	76	76
Alkalinity (mg/L $CaCO_3$)	168	160	176
Total Chlorine (mg/L) [a]	<0.03	<0.03	<0.03
Total Ammonia (mg/L) [b]	<1.0	<1.0	<1.0

[a,b] See reference below

Note: Total chlorine and ammonia values are measured by Rainier Environmental to provide additional information in support of the bioassay test procedures. They are not intended to be interpreted as exact values, particularly near the detection limits where interferences are most likely to become apparent.

[a] Total chlorine is measured using a Hach DR/2000 spectrophotometer and colorimetric DPD Total Chlorine Reagent. Under optimum conditions, the method has a range of 0.03 to 2.0 mg/L ± 0.01 mg/L total chlorine. Compounds in the sample that interfere with chlorine detection include bromine, manganese, chromium, ozone, and peroxides. Additional interferences include extreme pH values and high alkalinity (greater than 300 mg/L Ca CO_3).

[b] Total ammonia is measured using a Hach DR/2000 spectrophotometer following the salicylate method which uses AmVer Diluent Reagent Test 'N Tube kits. Under optimum conditions, the method has a range of 0.4 to 50.0 ± 0.1 mg/L NH_3-N. High sample turbidity will give erroneously high values. Additional interferences to the method include extreme pH and high concentrations of magnesium, iron, nitrite, nitrate, or sulfate.

Results for the toxicity tests are summarized in Table 3. Individual statistical summaries for the test and copies of the laboratory bench sheets are provided in the Appendices A-D.

The NOEC (concentration at which no effect on the organisms is detected) was 100 percent sample for survival and 12.5 percent for reproduction. The associated chronic toxicity unit (TUc; 100 percent sample divided by the NOEC) was 1 for survival and 8 for reproduction.

Table 3. Summary of toxicity test results.

Sample	Endpoint	NOEC (% effluent)	Chronic Toxicity Unit (TUc) [a]
Final Effluent	Survival	100	1.0
	7-day Reproduction	12.5	8.0

[a] Chronic toxicity unit (TU_c = 100 ÷ NOEC)

4.0 QA/QC

Samples were received in good condition and within the temperature range specified by EPA (2002). The toxicity tests met all acceptability criteria for performance of control organisms. There were no deviations from protocol and water quality parameters remained within the ranges specified in the corresponding test methods throughout the tests.

Results for the most recent reference toxicant test used to monitor laboratory performance and test organism sensitivity are summarized in Table 4 and Appendix C. The coefficients of variation (CV) for the endpoints are also shown in the table. The results for the reference toxicant test fell within the acceptable range of mean ± two standard deviations of historical test results indicating that the test organisms were of an appropriate degree of sensitivity.

Table 4. Reference toxicant test results.

Species	Endpoint	Date initiated	LC_{50}/EC_{50}	Acceptable Range	CV (%)
Ceriodaphnia	7d survival	12/10/2013	1.52 g/L NaCl	1.26 - 2.70 g/L	21.1
	7d reproduction	12/10/2013	1.43 g/L NaCl	1.07 - 1.57 g/L	10.1

REFERENCES

Tidepool Scientific Software. 2000-2011. CETIS Comprehensive Environmental Toxicity Information System Software, Version 1.8.4.6.

USEPA. 2002. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition. EPA-821-R-02-013. pp. 141-196.

Appendix A
Statistical Summaries and Raw Bench Sheets

CETIS Summary Report

Ceriodaphnia 7-d Survival and Reproduction Test — **Rainier Environmental Laboratory**

Batch ID:	16-6500-4470	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	Eric Tollefson
Start Date:	10 Dec-13 15:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Perrier Water
Ending Date:	17 Dec-13 15:00	**Species:**	Ceriodaphnia dubia	**Brine:**	
Duration:	6d 23h	**Source:**	In-House Culture	**Age:**	<24h
Sample ID:	00-0407-8993	**Code:**	13-157	**Client:**	Washington Beef
Sample Date:	09 Dec-13 07:20	**Material:**	POTW Effluent	**Project:**	
Receive Date:	10 Dec-13 10:30	**Source:**	Washington Beef (WA0050202)		
Sample Age:	32h (1 °C)	**Station:**	Outfall 002		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
06-2978-4992	7d Survival Rate	100	>100	NA	NA	1	Fisher Exact/Bonferroni-Holm Test
21-2554-2975	Reproduction	12.5	25	17.68	36.0%	8	Steel Many-One Rank Sum Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
04-9633-9232	7d Survival Rate	LC5	0.4336	0.3023	1.693	230.6	Linear Interpolation (ICPIN)
		LC10	1.055	0.696	12.5	94.77	
		LC15	1.946	1.209	50	51.38	
		LC20	3.224	1.876	63.05	31.02	
		LC25	5.055	2.746	N/A	19.78	
		LC40	100	54.02	N/A	1	
		LC50	>100	N/A	N/A	<1	
13-6887-0457	Reproduction	IC5	0.2596	0.1753	1.289	385.2	Linear Interpolation (ICPIN)
		IC10	0.5867	0.3814	4.239	170.5	
		IC15	0.9986	0.6237	12.3	100.1	
		IC20	1.518	0.9084	13.79	65.9	
		IC25	2.171	1.243	15.31	46.06	
		IC40	5.338	2.642	20.87	18.73	
		IC50	16.05	4.031	52.18	6.232	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
04-9633-9232	7d Survival Rate	Control Resp	1	0.8 - NL	Yes	Passes Acceptability Criteria
06-2978-4992	7d Survival Rate	Control Resp	1	0.8 - NL	Yes	Passes Acceptability Criteria
13-6887-0457	Reproduction	Control Resp	26.1	15 - NL	Yes	Passes Acceptability Criteria
21-2554-2975	Reproduction	Control Resp	26.1	15 - NL	Yes	Passes Acceptability Criteria
21-2554-2975	Reproduction	PMSD	0.3603	0.13 - 0.47	Yes	Passes Acceptability Criteria

7d Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Dilution Water	10	1	1	1	1	1	0	0	0.0%	0.0%
6.25		10	0.5	0.3032	0.6968	0	1	0.1667	0.527	105.4%	50.0%
12.5		10	0.8	0.6426	0.9574	0	1	0.1333	0.4216	52.7%	20.0%
25		10	0.7	0.5196	0.8804	0	1	0.1528	0.483	69.01%	30.0%
50		10	0.9	0.7819	1	0	1	0.1	0.3162	35.14%	10.0%
100		10	0.6	0.4072	0.7928	0	1	0.1633	0.5164	86.07%	40.0%

Reproduction Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Dilution Water	10	26.1	23.22	28.98	5	31	2.438	7.709	29.54%	0.0%
6.25		10	12.5	7.319	17.68	0	31	4.387	13.87	111.0%	52.11%
12.5		10	17.3	12.55	22.05	0	32	4.025	12.73	73.57%	33.72%
25		10	6.1	3.463	8.737	0	18	2.233	7.062	115.8%	76.63%
50		10	13.3	11.05	15.55	0	22	1.904	6.019	45.26%	49.04%
100		10	1.6	0.6652	2.535	0	7	0.7916	2.503	156.5%	93.87%

Ceriodaphnia 7-d Survival and Reproduction Test — Rainier Environmental Laboratory

7d Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Dilution Water	1	1	1	1	1	1	1	1	1	1
6.25		0	1	0	0	1	0	1	1	1	0
12.5		1	1	1	0	0	1	1	1	1	1
25		0	1	1	1	0	1	1	1	1	0
50		1	1	1	1	1	1	1	0	1	1
100		0	0	1	1	1	1	0	1	0	1

Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Dilution Water	27	30	27	26	25	30	29	31	31	5
6.25		0	21	0	0	16	0	31	26	31	0
12.5		21	29	30	0	0	20	32	22	0	19
25		0	4	10	18	0	2	16	0	11	0
50		13	22	12	13	16	12	18	0	18	9
100		0	0	0	0	2	5	0	2	0	7

7d Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Dilution Water	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6.25		0/1	1/1	0/1	0/1	1/1	0/1	1/1	1/1	1/1	0/1
12.5		1/1	1/1	1/1	0/1	0/1	1/1	1/1	1/1	1/1	1/1
25		0/1	1/1	1/1	1/1	0/1	1/1	1/1	1/1	1/1	0/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1	1/1	1/1
100		0/1	0/1	1/1	1/1	1/1	1/1	0/1	1/1	0/1	1/1

Rainier Environmental
Washington Laboratory

Client: Washington Beef
Sample ID. WET
Test No: 1312-039
Log-In#: 13-157 13-160

Initial and Final Chemistries
Seven Day Chronic Freshwater Bioassay
Start Date & Time: 12/10/13 1530
Stop Date & Time: 12/17/13 1500
Test Species: Ceriodaphnia dubia 13-168

Conc. or % CON	Days 0 init.	0 final	1 init.	1 final	2 init.	2 final	3 init.	3 final	4 init.	4 final	5 init.	5 final	6 init.	6 final
pH	7.45	7.47	7.44	7.35	7.37	7.25	7.42	7.38	7.32	7.41	7.34	7.45	7.47	7.51
DO (mg/l)	8.1	8.2	8.0	8.2	8.1	8.2	8.1	8.2	8.1	8.1	8.1	8.2	8.0	8.2
Cond. (µmhos-cm)	194	213	195	204	196	212	193	202	196	201	195	202	195	199
Temperature (°C)	24.6	25.8	25.1	25.1	24.9	25.4	24.5	25.2	24.2	25.4	25.1	25.5	24.5	25.2

6.25	Days 0 init.	0 final	1 init.	1 final	2 init.	2 final	3 init.	3 final	4 init.	4 final	5 init.	5 final	6 init.	6 final
pH	7.41	7.62	7.42	7.58	7.37	7.34	7.42	7.44	7.31	7.45	7.34	7.45	7.45	7.55
DO (mg/l)	7.8	7.9	8.0	8.1	8.1	8.2	8.2	8.2	8.1	8.1	8.2	8.2	8.0	8.2
Cond. (µmhos-cm)	480	508	475	496	481	492	477	491	481	483	472	491	470	472
Temperature (°C)	24.7	25.6	25.1	25.6	24.9	25.4	24.7	25.3	24.2	25.4	25.0	25.5	24.3	25.3

12.5	Days 0 init.	0 final	1 init.	1 final	2 init.	2 final	3 init.	3 final	4 init.	4 final	5 init.	5 final	6 init.	6 final
pH	7.38	7.66	7.35	7.71	7.35	7.44	7.39	7.51	7.31	7.57	7.32	7.55	7.41	7.62
DO (mg/l)	8.2	8.2	7.9	8.1	8.0	8.2	8.2	8.2	8.1	8.2	8.2	8.2	7.9	8.2
Cond. (µmhos-cm)	765	789	762	771	767	769	759	771	767	772	743	755	741	748
Temperature (°C)	24.5	25.7	25.2	25.5	24.8	25.4	24.4	25.3	24.5	25.4	25.0	25.5	24.3	25.3

25	Days 0 init.	0 final	1 init.	1 final	2 init.	2 final	3 init.	3 final	4 init.	4 final	5 init.	5 final	6 init.	6 final
pH	7.33	7.77	7.32	7.82	7.33	7.52	7.35	7.59	7.25	7.69	7.28	7.67	7.35	7.68
DO (mg/l)	7.9	8.2	7.9	8.0	8.1	8.2	8.0	8.1	8.1	8.2	8.1	8.2	7.8	8.2
Cond. (µmhos-cm)	1308	1317	1311	1318	1309	1323	1298	1314	1305	1311	1284	1304	1279	1284
Temperature (°C)	24.5	25.7	25.3	25.5	24.8	25.4	24.5	25.5	25.1	25.4	25.1	25.5	24.2	25.3

50	Days 0 init.	0 final	1 init.	1 final	2 init.	2 final	3 init.	3 final	4 init.	4 final	5 init.	5 final	6 init.	6 final
pH	7.25	7.84	7.21	7.89	7.23	7.71	7.22	7.73	7.22	7.81	7.18	7.78	7.27	7.80
DO (mg/l)	7.9	8.2	8.0	8.2	8.1	8.2	7.8	8.2	8.0	8.0	8.0	8.2	7.7	8.2
Cond. (µmhos-cm)	2350	2378	2347	2367	2355	2362	2335	2352	2360	2360	2297	2331	2291	2298
Temperature (°C)	25.1	25.5	25.4	25.5	25.1	25.4	24.6	25.3	24.8	25.4	25.3	25.5	24.4	25.2

100	Days 0 init.	0 final	1 init.	1 final	2 init.	2 final	3 init.	3 final	4 init.	4 final	5 init.	5 final	6 init.	6 final
pH	7.18	7.90	7.13	7.99	7.17	7.91	7.15	7.94	7.16	7.92	7.19	7.89	7.22	7.94
DO (mg/l)	8.2	8.2	8.1	8.2	8.0	8.2	7.6	8.1	7.7	8.1	7.8	8.2	7.6	8.2
Cond. (µmhos-cm)	4470	4590	4450	4490	4460	4510	4440	4570	4490	4480	4180	4470	4150	4190
Temperature (°C)	24.9	25.6	25.7	25.5	25.2	25.4	25.2	25.3	24.7	25.4	25.8	25.5	24.7	25.3
Tech. Initials	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT

Dilution Water Batch #: DMW 012
Test Chamber: VWR

QA Check: CT

Sample Description: Brown
Animal Source: In House Culture
Comments:

Date Received: —
Date of Hatch: —

Ceriodaphnia 7-Day Chronic Survival and Reproduction

Client/Sample ID: Washington Beef
Test Number: 13-2-039

Start Date and Time: 12/10/13 1530
Stop Date and Time: 12/17/13 1500

Rep	Conc.	Cont	Daily Reproduction 1	2	3	4	5	6	7	8	Day 6 Total	Third Brood
1	CON	54	—	—	—	5	—	9	13		14	27
2		51	—	—	—	5	—	11	14		16	30
3		41	—	—	—	4	—	10	13		14	27
4		33	—	—	—	3	—	10	13		13	26
5		21	—	—	—	4	—	8	13		12	25
6		53	—	—	—	4	—	11	15		15	30
7		15	—	—	—	4	—	10	15		14	29
8		16	—	—	—	3	11	—	17		14	31
9		52	—	—	—	4	—	12	15		15	31
10		7	—	—	—	3	—	—	2		3	5
Analyst			QA	QA	QA	QA	QA	QA	QA	QA		
Time		1530	1500	1430	900	930	1015	1045	1500			
Selen #		008	008	008	008	008	008	008	008	008		

Rep	Conc.	Cont	Daily Reproduction 1	2	3	4	5	6	7	8	Day 6 Total	Third Brood
1	6.25	8	—	—	X						0	0
2		3	—	—	—	5	—	8	8		13	21
3		46	—	—	X						0	0
4		42	—	—	X						0	0
5		32	—	—	—	4	—	12	—		16	16
6		30	—	X							0	0
7		24	—	—	—	5	12	—	14		17	31
8		25	—	—	—	5	6	—	15		11	26
9		59	—	—	—	4	11	—	16		15	31
10		48	—	—	X						0	0

Rep	Conc.	Cont	Daily Reproduction 1	2	3	4	5	6	7	8	Day 6 Total	Third Brood
1	12.5	26	—	—	—	5	—	4	12		9	21
2		37	—	—	—	4	—	11	14		15	29
3		29	—	—	—	3	—	8	19		11	30
4		57	—	—	X						0	0
5		39	X								0	0
6		6	—	—	—	4	—	4	12		8	20
7		10	—	—	—	8	—	11	13		19	32
8		13	—	—	—	4	3	—	15		7	22
9		20	—	—	—	—	—	—	—		0	0
10		28	—	—	—	3	—	6	10		9	19

Comments: X=mortality

Rep	Conc.	Cont	Daily Reproduction 1	2	3	4	5	6	7	8	Day 6 Total	Third Brood
1	25	17	—	—	X						0	0
2		35	—	—	—	2	—	2	—		4	4
3		55	—	—	—	2	—	5	3		7	10
4		45	—	—	—	5	—	10	3		15	18
5		49	X								0	0
6		40	—	—	—	—	—	2	—		2	2
7		1	—	—	—	2	—	6	8		8	16
8		60	—	—	—	—	—	—	—		0	0
9		56	—	—	—	—	—	—	11		0	11
10		12	—	—	X						0	0

Rep	Conc.	Cont	Daily Reproduction 1	2	3	4	5	6	7	8	Day 6 Total	Third Brood
1	50	4	—	—	—	—	—	4	9		4	13
2		19	—	—	—	—	—	8	14		8	22
3		50	—	—	—	—	—	6	6		6	12
4		22	—	—	—	—	—	9	4		9	13
5		58	—	—	—	—	—	8	8		8	16
6		36	—	—	—	—	2	—	10		2	12
7		17	—	—	—	—	6	—	12		6	18
8		9	—	X							0	0
9		43	—	—	—	—	6	—	12		6	18
10		47	—	—	—	—	—	—	9		0	9

Rep	Conc.	Cont	Daily Reproduction 1	2	3	4	5	6	7	8	Day 6 Total	Third Brood
1	100	11	—	—	X						0	0
2		2	—	—	X						0	0
3		18	—	—	—	—	—	—	—		0	0
4		34	—	—	—	—	—	—	—		0	0
5		31	—	—	—	—	—	—	2		0	2
6		27	—	—	—	—	—	—	5		0	5
7		5	X								0	0
8		23	—	—	—	—	2	—	—		2	2
9		38	—	X							0	0
10		44	—	—	—	—	2	5	—		7	7

QA QA

Appendix B
Sample Check-In Sheets

Rainier Environmental
5013 Pacific Hwy East, Ste. 20
Tacoma, WA 98424

Sample Check-In Information

Client: Washington Beef

Tests Performed: cd-C

Test ID No(s).: 13J2-039

Sample Description: Brown

Sample ID:	WET	WET	FE outfall 002 WET	
Log-in No. (10-xxxx):	13-157	13-160	13-168	
Sample Collection Date & Time:	12/9/13 720	12/11/13 725	12/13/13 740	
Sample Receipt Date & Time:	12/10/13 1030	12/12/13 1400	12/14/13 1100	
Check-in Temperature (°C)	1.0	2.4	2.4	
Temperature OK?	(Y) N	(Y) N	(Y) N	Y N
DO (mg/L)	6.7	7.0	5.4	
pH (units)	7.47	7.35	7.30	
Conductivity (µS/cm)	4610	4390	4090	
Salinity (ppt)	2.3	2.3	2.0	
Tit. Vol / Sam. Vol. / Alkalinity (mg/L)*	4.2 / 25 / 168	4.0 / 25 / 160	4.4 / 25 / 176	/ /
Tit. Vol. / Sam. Vol. / Hardness (mg/L)* [a]	2.0 / 25 / 80	1.9 / 25 / 76	1.9 / 25 / 76	/ /
Total Chlorine (mg/L)	<0.03	<0.03	<0.03	
Total Ammonia (mg/L)	<1.0	<1.0	<1.0	
Technician Initials	gt	gt	gt	

* = mg/L as $CaCO_3$, [a] = Measured for freshwater samples only, NA = Not Applicable, NM = Not Measured

COC Complete? Y or N
1 Y 2 Y 3 Y

Filtration? Y (N)
Pore Size: _____
Organisms or Debris

Aeration? Y (N)
Length of Time: _____
Final DO: _____
Final pH: _____

Freshwater Tests:

Control/Dilution Water Source: test type: cd-C (8:2 (DMW)) -012 MHW Other: _____ Alkalinity: 64 Hardness: 88

Control/Dilution Water Source: test type: _____ 8:2 (DMW) MHW Other: _____ Alkalinity: _____ Hardness: _____

Additional Control? Y N = _____ Alkalinity: _____ Hardness: _____

Hardness Adjustment? Y (N)
If adjusted, please see worksheet for details.

Marine Tests:

Control/Dilution Water Source: test type: _____ ART SW NAT SW Alkalinity: _____ Salinity: _____

Control/Dilution Water Source: test type: _____ ART SW NAT SW Alkalinity: _____ Salinity: _____

Additional Control? Y N = _____ Alkalinity: _____ Salinity: _____

Sample Salted w/ artificial salt? Y N If yes, what ppt? _____ test type: _____

Sample salted w/brine? Y N If yes, what ppt? _____ test type: _____

Sub-samples for additional chemistry:

Comments: Temperature for grab sample must be 0-20°C if received within 1 hour of collection time, 0-12°C if effluent received within 4 hours of collection time, and 0-6°C for all other samples.

QC Check: gt

Appendix C
Reference Toxicant Test

Appendix D
Chain-of-Custody Forms

Chain of Custody

ier
RONMENTAL

Washington
5013 Pacific Highway East, Suite 20 Fife,
WA 98424
Phone253.922.8898

Date 12/9/13 Page 1 of 1

ction By:

to:		Invoice To:	
any	Washington Beef LLC	Company	
ess	201 Elmwood Rd.	Address	
State/Zip	Toppenish WA. 98948	City/State/Zip	
act	Sherry Byers	Contact	Same
e	509 952-6534	Phone	
l	Sherry.Byers@abfoods.com	Email	

PLE ID	DATE	TIME	MATRIX	CONTAINER TYPE	NO. OF CONTAINERS	COMMENTS	ANALYSES REQUIRED: WST	Receipt Temperature (°C)
ET	12/9/13	7:20 AM	Waste Water	Cabitainer	1		X	1.0

JECT INFORMATION

UPS

SAMPLE RECEIPT

Total No. of Containers	1
Received Good Condition?	Y
Matches Test Schedule?	Y

RELINQUISHED BY (CLIENT)

(Signature) (Time): 12:30 pm
(Printed Name) (Date): Annette M. Harris-Richardson
(Company): Washington Beef L.L.C.

RELINQUISHED BY (COURIER)

(Signature) (Time):
(Printed Name) (Date):
(Company):

RECEIVED BY (COURIER)

(Signature) (Time):
(Printed Name) (Date):
(Company):

RECEIVED BY (LABORATORY)

(Signature) (Time): Eric Tollefson 1030
(Printed Name) (Date): ERIC TOLLEFSON 12/10/13
(Log In #): 13-157

STRUCTIONS/COMMENTS:

Chain of Custody

Rainier ENVIRONMENTAL

Washington
5013 Pacific Highway East, Suite 20 Fife,
WA 98424
Phone253.922.8898

Date 12/11/13 Page 1 of 1

Sample Collection By:

Report to:		**Invoice To:**	
Company	Washington Beef L.L.C	**Company**	
Address	201 Elmwood Rd.	**Address**	
City/State/Zip	Toppenish WA 98948	**City/State/Zip**	Same
Contact	Sherry Byers	**Contact**	
Phone	509-952-6534	**Phone**	
Email	sherry.Byers@abfoods usa.com	**Email**	

	SAMPLE ID	DATE	TIME	MATRIX	CONTAINER TYPE	NO. OF CONTAINERS	COMMENTS	ANALYSES REQUIRED: WET	Receipt Temperature (°C)
1	WET	12/11/13	7:25am	Waste water	Cubitainer	1		X	2.4
2									
3									
4									
5									
6									
7									
8									
9									
10									

PROJECT INFORMATION

Client:	
PO No.:	
Shipped Via:	UPS

SAMPLE RECEIPT

Total No. of Containers	1
Received Good Condition?	Y
Matches Test Schedule?	Y

SPECIAL INSTRUCTIONS/COMMENTS:

RELINQUISHED BY (CLIENT)

(Signature) (Time): 12:45pm
(Printed Name) (Date): Annette M. Harris-Richardson 12/11/13
(Company): Washington Beef L.L.C.

RELINQUISHED BY (COURIER)

(Signature) (Time):
(Printed Name) (Date):
(Company):

RECEIVED BY (COURIER)

(Signature) (Time):
(Printed Name) (Date):
(Company):

RECEIVED BY (LABORATORY)

(Signature) (Time): Eric Tollefson 1400
(Printed Name) (Date): ERIC TOLLEFSON 12/12/13
(Log In #): 13-160

Chain of Custody

Rainier ENVIRONMENTAL

Washington
5013 Pacific Highway East, Suite 20 Fife,
WA 98424
Phone253.922.8898

Date_____Page___of___

Sample Collection By:

Report to:		Invoice To:	
Company	Washington Beef LLC	Company	Washington Beef LLC.
Address	201 Elmwood Rd.	Address	201 Elmwood Rd.
City/State/Zip	Toppenish, WA 98948	City/State/Zip	Toppenish, WA 98948
Contact	Sherry Byers-Eddy	Contact	Sherry Byers-Eddy
Phone	509-952-6534	Phone	509-952-6534
Email	Sherry.Byers@abfoodsusa	Email	Sherry.Byers@abfoodsusa

	SAMPLE ID	DATE	TIME	MATRIX	CONTAINER TYPE	NO. OF CONTAINERS	COMMENTS	ANALYSES REQUIRED: WET	Receipt Temperature (°C)
1	F.E. Outfall 002 WET	12/13/13	7:40 am	Waste Water	Cubitainer	1		✓	2.4
2									
3									
4									
5									
6									
7									
8									
9									
10									

PROJECT INFORMATION		SAMPLE RECEIPT	
Client:		Total No. of Containers	1
PO No.:		Received Good Condition?	Y
Shipped Via:	UPS	Matches Test Schedule?	Y

SPECIAL INSTRUCTIONS/COMMENTS:

RELINQUISHED BY (CLIENT)

(Signature) (Time): 10:50 am
(Printed Name) (Date): Mike Hernandez 12/13/13
(Company): WA. Beef LLC.

RECEIVED BY (COURIER)

(Signature) (Time):
(Printed Name) (Date):
(Company):

RELINQUISHED BY (COURIER)

(Signature) (Time):
(Printed Name) (Date):
(Company):

RECEIVED BY (LABORATORY)

(Signature) Eric Tollefson (Time): 1100
(Printed Name) ERIC TOLLEFSON (Date): 12/14/13
(Log In #): 13-168